

# 4

## PROJECT EXECUTION PLAN

The Project Execution Plan (PEP) is the primary agreement on project planning and objectives between the Headquarters program office and the field, which establishes roles and responsibilities and defines how the project will be executed. The Headquarters or field program manager and/or the Federal project manager initiates a Project Execution Plan. Development of the preliminary Project Execution Plan can be started by the prime contractor or M&O/M&I at the same time as development of the Acquisition Plan or shortly after.

### 4.1 OVERVIEW

The PEP uses the results from other planning processes and combines them into consistent and coherent documentation that is used to guide both project execution and project control. The PEP documents planning assumptions, documents tailoring decisions, and provides the basis for subsequently measuring progress.

The PEP will be tailored to meet the specific needs and complexities unique to each project. The degree of tailoring will be documented in the PEP. All PEP elements placed under configuration management.

All projects will have both preliminary and final Project Execution Plans that are approved by the appropriate SAE/AE. The preliminary PEP is initially prepared prior to CD-1, Approval of Preliminary Baseline Range. The Final Project Execution Plan will be finalized prior to CD-2.

Over the course of a project, the Project Execution Plan shall at a minimum address the following:

- ▶ mission need justification/project objectives
- ▶ project description
- ▶ organizational structure; roles, responsibilities, and authorities; and accountability, including decision authority for Headquarters and field element, program and project management and support functions, safety analysis support functions such as health physics, Environment, Safety and Health, National Environmental Policy Act documentation, etc.
- ▶ resource requirements

- ▶ technical considerations, including
  - extent of research and development and its relationship to the project
  - value engineering
  - test and evaluation
  - Environment, Safety and Health
  - Integrated Safety Management
  - sustainable building design
  - configuration management
  - system engineering, and
  - reliability, maintainability, and quality assurance
- ▶ project cost, schedule, and scope baselines (or preliminary baseline ranges for a preliminary Project Execution Plan), including separately identified contingencies, and descriptions of Levels 0, 1, 2, and 3 baseline change control thresholds
- ▶ life-cycle cost
- ▶ alternatives, trade-offs
- ▶ risk management plan
- ▶ Integrated Safety Management Plan
- ▶ project controls system and reporting system
- ▶ Acquisition Plan

The Project Execution Plan must reflect the point at which the project is complete. The plan shall indicate at what point the project manager's responsibility ceases and an operating organization takes over. Specifications must clearly delineate the end product involved, not only for purposes of project execution, but to indicate the specific parameters at project completion.

## 4.2 PURPOSE

The Project Execution Plan represents an agreement between the AE and the project on project planning and objectives. The PEP documents project baselines. The PEP also supports DOE Headquarters oversight activities and assists in communication with stakeholders and regulators.

The Project Execution Plan documents the plan for project execution, monitoring, and control, and guides the project manager throughout the life of the project to ensure consistency in management, adherence to process, and clarity of roles and responsibilities.

## 4.3 APPLICATION

### 4.3.1 Establishment/Maintenance

The Project Execution Plan is prepared through a collaborative effort between DOE and the contractor, but is the prime responsibility of the Federal project manager and the IPT. Development of the PEP can be started at the same time as development of the acquisition plan or shortly after. However, preparation of the two plans should be synchronized. If the approved Acquisition Plan indicates that the M&O/M&I contractor has a role in the acquisition of the project as prime contractor/integrator, the M&O/M&I contractor may participate with DOE in development of the Project Execution Plan.

Development of the PEP will begin in the preconceptual and conceptual project phases, and the draft PEP will be approved for internal use at completion of conceptual design. The final PEP will be approved at approval of CD-2, and will be updated once a year or as necessary to maintain information current and to include new information. If the information required in the PEP exists in other project documents, that information can simply be summarized and referenced in the PEP, but not included.

### 4.3.2 Approval

The Project Execution Plan will be approved by the Deputy Secretary, Program Secretarial Office, the program manager, the operations/field office manager, and the Federal project manager.. The DOE field element shall submit the plan for approval to the management responsible for the Approve Performance Baseline Critical Decision-2 before the start of the project execution phase. Where plans are approved by the DOE field element, they must be coordinated with the cognizant Headquarters program manager prior to DOE field element approval.

### 4.3.3 Project Execution Plan Elements

A minimal elaboration on the contents of each of the PEP elements listed in Section 4.1 follows. In many cases, smaller projects will cover their systematic project management approach in simpler methodology such as project data sheets or memoranda of understanding (MOU). These may partially satisfy the need for a separate PEP.

- a) **Title Page** shall contain the officially approved project title, DOE program, unique project number, and revision date.
- b) **Introduction** shall contain the project title, unique project number, a brief history, and summary of the project including the purpose, summary goals, and timeframe. It will also contain any major assumptions made in preparing the PEP, such as on smaller projects the manner in which the PEP has been streamlined yet still meets requirements.
- c) **Justification of Mission** shall be a brief (2 to 6 pages) that will provide the program mission/goals, why the project is needed, and how the project will support these goals. It will describe project technical, schedule, and cost objectives as well as performance indicators for attainment of these summary goals. Goals are to be expressed in an objective, quantifiable, and measurable form. This statement should be considered the “anchor” of other planning documentation.
- d) **Project Description** shall describe what is going to be done and how it will be accomplished. It will provide a summary of technical and expected functional performance, describing what is to be accomplished, developed, or constructed. The emphasis for this section will evolve from high-level functions in the preconceptual phase to functions at a system and subsystem level in the conceptual phase to a component level in the execution phase.
- e) **Management Structure and Responsibilities** shall describe the project management structure, including its integration into the program management structure. It will identify all significant interfaces with other contributing organizations as well as lines of authority, responsibility, accountability, and communication. Definitions should be provided for all significant interfaces in the project such as between project geographic locations, functional units, and contractors. Any MOUs between project participants will be included. Interface management control techniques that will be utilized and procedures for resolving conflict between respon-

sible organizations shall be noted. It will also identify specific management tools to support management in planning and controlling the project and describe the use of special boards and committees. This section should address any requirements for a resident office, including duties and authority.

This section will consist of descriptive text accompanied by appropriate organization and related charts. The charts should be comprehensive in scope and at a level of detail consistent with the current project phase of the acquisition cycle. Any special agreements between participants that are not documented in MOUs shall be noted.

Roles, responsibilities, authorities, and accountabilities for DOE, other federal agencies, and participating contractors will be described. Project support functions shall be included, such as health physics, safety, quality, National Environmental Policy Act, etc.

- f) **Work Breakdown Structure (WBS)** shall define all authorized project work through the use of the WBS that will be used in managing the project. The WBS structure and WBS dictionary will be provided with elements displayed and defined at least through level 3 of the project. For guidance on preparation of the WBS, see PMBOK-Project Management Body of Knowledge, PMI Standards Committee.
- g) **Resource Plan** shall provide a short graphic description of funding and expenditure plans including the total project cost profile, budget by funding category, and the total project life-cycle cost plan by fiscal year. Categories shall include budget outlay (BO), actual and estimated budget authority (BA), and appropriations at fiscal year end. Prior year experience may be combined. BO shall be on an accrual basis. Suggested reference guidance includes Project Data Sheet Preparation Instructions and OMB A-11, Report Preparation Guidance
- h) **Project Technical, Schedule, and Cost Life-Cycle Baselines** (including separately identified contingencies) will provide the key life cycle planning against which work execution is measured.

**The technical baseline shall be derived from, and traceable to, mission requirements and is the basis for establishing both the schedule and cost baselines in an integrated manner.**

The schedule baseline section shall include a listing of major events, with a discernible critical path, major milestones, Critical Decision points, and their anticipated approval dates. Lower-level schedules that are to be developed and maintained will be identified and significant milestones with other federal agencies shall be identified in this section. Schedule logic shall portray major activities and significant interfaces and constraints.

Cost baseline estimates and staffing plans shall be provided at summary levels of the project WBS and be time-phased consistent with the schedule baseline for deferred multi-year periods. Estimated costs beyond the multi-year period of definition will also be included to provide life-cycle costs. Reference guidance includes Practice 7, Baseline Development and Validation, and the Integrated Planning, Accountability, and Budgeting System (IPABS) Handbook.

- i) Baseline Change Control Approval Thresholds shall be those specified by DOE O 413.X, Attachment S, and shown in Figure 4-1. This section of the PEP will further define those change thresholds defined by the column designated as Level 2/3. Any other agreed to deviations from DOE O 413.X must also be specified, as must any authority delegation for threshold approvals.
- j) Risk Management Assessment shall provide, at a minimum, a discussion of levels of risk associated with technical requirements; schedule; cost; Safeguards and Security; and Environment, Safety, and Health; together with action(s) that will be taken to mitigate, reduce, or eliminate the risk, see Practice 8, Risk Management.
- k) Project Controls System Description will provide a description of the integrated systems used for monitoring and control of the project including the use of work planning, scheduling software, cost control, funds control, project status meetings, project status reporting, and the various parameters of the change control process. The use and approval of applicable contingencies and reserves will also be described. Items that should also be addressed include the project management philosophy toward project control goals and objectives, and integration of the systems. Each system shall be discussed with respect to required documentation, level of control, relationship to other system documentation, and change control procedures to be utilized.

A reporting and project review plan should be included in the PEP. This will specify the format, content, and frequency of both periodic reports and periodic reviews. Reports and reviews shall be timely, thorough, and accurate.

### Approval Authority

- Level 0 Changes - Secretarial Acquisition Executive
- Level 1 Changes - Program Secretarial Officer
- Level 2 Changes - Federal Project Manager as delegated by the Operations/Field Office Manager or Program Manager
- Level 3 Changes - Contractor

### 2.a Major System Projects

Major System	Level 0	Level 1	Level 2/3
<b>Technical Scope</b>	Changes to scope that affect mission need requirements.	Changes to scope that may impact operation functions functions, but does not affect mission need.	As defined in the Project Execution Plan.
<b>Schedule</b>	Six or more months increase (cumulative) in a project-level schedule milestone date.	Three to six months increase (cumulative) in a project-level schedule milestone date.	As defined in the Project Execution Plan.
<b>Cost</b>	Any increase in Total Project Cost and/or Increase in Total Estimated Cost.**	Project cost sub-elements as defined in the Project Execution Plan.	As defined in the Project Execution Plan.

### 2.b Other Projects

Other Projects*	Level-1	Level-2/3
<b>Technical Scope</b>	Changes to scope that affect mission need requirements.	As defined in the Project Execution Plan.
<b>Schedule</b>	Six or more months increase (cumulative) in a project-level schedule milestone date.	As defined in the Project Execution Plan.
<b>Cost</b>	Any increase in Total Project Cost and/or increase in Total Estimated Cost.**	As defined in the Project Execution Plan.

\* For Other Projects less than \$100M, the PSO may delegate Level-1 approval authority to the Program Manager or operations/field office manager. General plant projects, accelerator improvement projects, capital equipment projects, and operating expense funded projects that are \$5M or less are the responsibility of the Federal Project Manager as delegated by the Operations/Field Officer Manager.

\*\* Total Estimated Cost does not apply to environmental restoration projects.

**Figure 4.1. Baseline Change Approval Thresholds**

Additional reference guidance may be found in Practice 10, Project Control; Earned Value Management Implementation Guide (ANSI/EIP-748-1998); Practice 17, Assessments, Reviews and Lessons Learned; and the EM Integrated Planning, Accountability, and Budgeting Systems (IPABS) Handbook.

- l) Acquisition Strategy Plan provides a discussion of the proposed or current method of accomplishing the project including the use of internal labor, contracting and subcontracting, and the type of contract vehicles. It is prepared initially at a high level and from the DOE perspective. Subsequently, it will be further enhanced by contract procurement strategy details.
- m) Alternate, Tradeoffs will identify alternative project architectures (solutions) considered and evaluated. As the design phase matures, a number of more detailed alternatives (for segments of the design) will be considered through the use of a design evaluation technique called tradeoff studies. This is in order to obtain the one solution that best accomplishes the identified function or set of functions and satisfies project requirements. Both categories will be documented in the PEP to provide tracking of the various approaches considered during the project's evolution. Also see manual, Section 9, Alternatives Analysis and Trade-off Studies.
- n) Technical Considerations will include a number of topics including the extent of research and development and its relationship to the project technology, e.g., technology development plan, the applications of value engineering, test and evaluation, safety; configuration management, system engineering, reliability; maintainability; and quality assurance. Each topic will be addressed on its use and extent of application to the project during each phase. Existing documents and plans may be referenced if appropriate. The design philosophy and approach shall also be described. Any special or unusual technical considerations will be documented. Two examples of what could be appropriate elements of the technical consideration section are provided for understanding:
  - Systems Engineering Management. Where systems engineering is an integral part of project execution, this section should describe the extent to which systems engineering shall be used, how the process will be managed, and who should be responsible for various aspects of management.
  - Configuration Management. This section describes the details of technical interface management and control during project execution. The configuration management plan should highlight identification, recording, and reporting of product interface data.



- o) Integrated Safety Management Plan. An Integrated Safety Management Systems Description shall be prepared that will describe how the principles of ISMS are integrated into the overall management of the project. The ISMS helps to ensure that worker, public, and environmental safety protection are incorporated into the planning and performance of all tasks by each core function. ISMS spans the lifecycle of the project, and the plan will need to be reviewed regularly to ensure it is current with the evolving project (DOE Policy 450.4, Integrated Safety Management Systems Policy).

#### **4.3.4 Consideration of Additional PEP Elements**

The following elements may sometimes be a part of the PEP. This is not an all inclusive list, but rather some typical important project elements that need to be considered as being possible PEP segments. These determinations will be made jointly by responsible DOE and contractor management under the tailored approach. The determination is not whether the plan exists or not, but rather, whether it will be considered as an element of the PEP. In many cases the requirement will be covered by site-level, rather than project-level, documentation.

1. Project Quality Assurance Plan specifically addresses the 10 criteria of DOE Order 5700.6C or DOE Order 414.1 arranged in three categories (management, performance, and assessment) to ensure that quality assurance will be achieved throughout the life of the project and that “lessons learned” will be documented for future projects. In most cases a site-wide plan should already be in existence that can be referenced or adapted by the project. (AMSE/Nuclear Quality Assurance Standard-1 (NQA-1))
2. Safeguards and Security Documentation is usually satisfied by referencing existing site planning. However, if definition of a project results in unique situations of a safeguard or security nature, then a specific plan may need to be developed as determined by the responsible project manager.
3. Transition and Closeout Plan may be developed as part of the PEP to assure smooth transition from project (construction) to user (operation) or from demolition to stewardship. Generally, this is a lower-tier plan that is generated between the user, the constructor, and the project manager. For operating facilities, there are two types of turnovers, a system turnover and a room/area (partial) turnover. A system turnover includes the hardware (piping, pumps, conduit, control panels, etc.) that combine to perform a given function. A room/area turnover consists of a visual examination of the physical appearance,

cleanliness, and overall completeness of the room/area. The room/area turnover includes installed hardware, but only the extent of its appearance, completeness, identification markings, coating, insulation, etc. Elements of this plan shall generally include: permits, schedules, NEPA documentation, turnover boundaries, drawings, records and deliverables, punchlist items, walkdowns, responsibilities, and interfaces.

- d) Startup Plan is generally prepared by the user/project to assure a smooth transition from the project to the user, and to assure that appropriate budget is identified for the startup activities and subsequent operational phase. The startup plan establishes a cost-effective sequence of testing and test support activities deemed necessary to provide confidence that all testing (acceptance, preoperational, and operational) will be successful.

In addition to providing a plan for test and test support activities, the startup plan outlines organizations responsible for managing and performing startup activities. This includes describing the participating organizations' management responsibilities, interfaces, lines of authority, accountability, qualifications, and independent verification. Finally, the plan establishes the rationale for the kind, amount, and schedule for required project testing activities.

The depth and complexity of each facility-specific startup plan will vary depending upon project complexity. Startup plans must thoroughly address the following elements: administrative management of startup activities, work management of startup activities, support for startup activities, and test engineering activities.

#### 4.4 SUMMARY

As stated elsewhere, the content and extent of detail for the Project Execution Plan will vary in accordance with the size, complexity, and phase of the project. For smaller projects, many of the sections addressed will be included in other documents that will adequately cover the topical area of interest. An example might be the project data sheet which could provide funding plans. A simple reference to the latest revision of the data sheet would document the funding requirements. For large, complex projects more detail is generally necessary for complete understanding of a PEP element. Various factors must be considered, weighed, and judgment exercised to determine the final scope and content for any particular project's PEP.